# JEFFERY THOMAS MITCHELL

228 Grove Avenue, Patchogue, NY 11772

Phone: (631) 637-5857

Email: jefferymitchell333@gmail.com

LinkedIn profile: https://www.linkedin.com/in/jeffery-mitchell-50650b9

#### **CURRENT POSITION:**

Physicist, Brookhaven National Laboratory February 1995 - present

#### **EDUCATION**

- 1986-1992
  - Yale University, New Haven, CT

Ph.D. December 1992

• Dissertation titled "Forward Baryon Distributions in Relativistic Heavy Ion Collisions." My thesis advisor was B. Shiva Kumar.

M.S. May, 1988.

M. Phil. May, 1988.

1982-1986

• Louisiana State University in Shreveport, Shreveport, LA.

B.S.: May, 1986.

#### PREVIOUS WORK EXPERIENCE

June, 1992 - Jan, 1995

Postdoctoral Fellow

Lawrence Berkeley Laboratory

Projects: NA35 hadron data analysis, STAR TPC R&D, Microstrip Gas Chamber R&D, STAR event reconstruction software development.

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#### **EXPERIENCE**

- **Data Analysis:** Over 21 years of experience in results-driven analysis of large scientific datasets. Integral part of the team that discovered the Quark Gluon Plasma. Primary investigator on many analyses that have been published in peer-reviewed scientific journals.
- **Software Development:** Over 21 years of experience developing and deploying scientific software in a production environment for 6 major high energy physics experiments. Completed applications include pattern recognition software, machine learning, Monte Carlo simulations, statistical modeling, real-time data monitoring, data visualization, and scientific animations.
- Coordination: Coordinator of the data production and data mining group for the PHENIX experiment. Coordinator of physics data analysis and simulation projects for the PHENIX experiment. Coordinator of pattern recognition and data analysis software development and deployment for the PHENIX experiment.
- **Documentation and Communication:** More than 180 peer reviewed scientific papers. Many invited presentations at international scientific conferences. Produced educational animations that have appeared on news programs including ABC, CNN, and BBC.

#### **TECHNICAL SKILLS**

• Languages: C++, Python, Java, Perl

• Databases: PostgreSQL

 Machine Learning: includes linear and non-linear regression, regression trees, kNN and naïve Bayesian classification, k-means clustering, neural networks, support vector machines

• Statistical Tools: R, ROOT (a scientific package developed by CERN), Matlab

• **Platforms:** Linux, Windows

#### RESEARCH GOALS AND ACHIEVEMENTS

My primary research interest is in the field of Relativistic Heavy Ion Physics. Within that field, my research has focused upon the experimental search for the presence of a critical point in the QCD phase diagram..

My research efforts have been concentrated upon the analysis of the wealth of data taken by the PHENIX experiment at the Relativistic Heavy Ion Collider (RHIC). I have been the primary author on six PHENIX publications describing measurements of charged particle and transverse energy production and fluctuations in ultra-relativistic Au+Au collisions. The motivation for these studies is to search for evidence of critical behavior due to a phase transition from normal hadronic matter to a Quark-Gluon Plasma or due to the presence of a critical point.

I have conducted research at two other major relativistic heavy ion accelerator facilities: the BNL Alternating Gradient Synchrotron (AGS), and the CERN Super Proton Synchrotron (SPS). At the AGS on Experiment E814, I analyzed the extent of stopping and a search for pion-neutron bound states, or "pineuts". I analyzed data from AGS Experiment E896 in a search for the H particle in heavy ion collisions. At the SPS on Experiment NA35, I analyzed the extent of stopping at the higher collision energies and studied the evolution of baryon distributions in rapidity as a function of impact parameter.

Apart from the research interests listed above, I have interest in other technical topics. I apply these techniques to my analyses whenever possible. I am interested in the application of machine learning techniques and pattern recognition techniques both in high energy physics and in practical applications. I am also interested in scientific visualization using Java applets with an eye towards public outreach and education of complicated topics. I have also developed an online event display for the PHENIX experiment.

#### TEACHING EXPERIENCE

Yale University Undergraduate Courses (Graduate Student Teaching Assistant)

- Spring 1992: Graduate Physics Laboratory Nuclear Physics
- Fall 1991: Mathematical Physics
- Spring 1991: General Physics Graduate Courses
- Spring 1990: Graduate Physics Laboratory Solid State Physics
- Fall 1989: Electrodynamics
- Spring 1989: Advanced Physics Laboratory
- Fall 1988: Computational Physics
- Fall 1986, 1987: General Physics Laboratory
- Spring 1988: Quantum Mechanics
- Spring 1987: General Physics Laboratory
- Spring 1986: Undergraduate Physics Tutor

I have given many presentations to high school students and the general public about heavy ion physics, the RHIC collider, and the PHENIX as a representative of the BNL Physics Department and PHENIX from 1997 to the present. I have been a lecturer for the BNL Summer Student Program for the past four years and have participated in many RHIC open houses to the public. I am a contributor to the BNL Online Classroom Project. I have created several educational RHIC animations and images that have appeared in many major newspapers and newscasts. I have always given education a high priority.

Mentored M. Sun and M. Dai – BNL SULI Summer Student Program – Summer 2011, Summer 2012

Mentored R. Armanderiz – BNL VFP Program – Summer 2011

Mentored R. Armanderiz – PHENIX Graduate Student – August 2004 to August 2006

Supervised S. Burke – SUNY Stony Brook Summer Student Program – Summer 2001

Mentored D. Silvermyr - PHENIX Graduate Student - October, 1999 to October, 2000

Supervised M. Hoffman - BNL Summer Student Program - Summer 1996

Supervised W. Howe - ICSEE program - Summer 1994

#### PROFESSIONAL MEMBERSHIP

- American Physical Society
- APS Division of Nuclear Physics

# **Committee Membership**

- \* June 2015 Present: Member, RHIC and AGS User's Executive Committee
- \* July 2015 Present: Member, Beam Energy Scan Theory Collaboration
- \* July 2013 Present: Member, Organizing committee for the Workshop on the Critical Point and Onset of Deconfinement
- \* January 2010 December 2011: PHENIX Data Production Manager
- \* January 2010 December 2011: Member, PHENIX Detector Council
- \* October 2010 October 2011: BNL Nuclear Physics Seminar Committee
- \* October 2009 October 2010: Chair, BNL Nuclear Physics Seminar Committee
- \* October 2008 October 2011: BNL Nuclear Physics Seminar Committee
- \* May 2003 January 2007: BNL Association of Students and Post-docs Advisory Board
- \* December 2003 July 2004: ISMD "Multiparticle Dynamics" Conference Local Organizing Committee.
- \* May 2002 May 2003: BNL Quality-of-Life Committee
- \* March 2002 July 2004: PHENIX Global Physics Working Group Convenor
- \* January 2000 October 2002: RHIC/AGS User's Executive Committee
- \* October 1999 September 2000, October 2003 September 2004: Chairman of the BNL Nuclear Physics Seminar Committee
- \* January 2000 January 2001: Quark Matter 2001 Conference Local Organizing Committee and Program Committee

#### **Awards**

- \* Louisiana State University in Shreveport Distinguished Alumni Award 2012
- \* Recipient of the 2001 Brookhaven National Laboratory Sambamurti Award.

#### LIST OF SCIENTIFIC PUBLICATIONS

# Publications in refereed journals:

- Tests of constituent quark generation methods which maintain both the nucleon center of mass and the desired radial distribution in Monte Carlo Glauber models,
  - J.T. Mitchell et al., pre-print arXiv:1603.08836. Submitted and approved for publication in Phys. Rev. C.
- Centrality-dependent modification of jet production rates in deuteron-gold collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. Lett. 116 (2016) 122301.
- Measurement of parity-violating spin asymmetries in W+- production at midrapidity in longitudinally polarized p+p collisions,
  - A. Adare et al., Phys. Rev. D93 (2016) 051103.
- Single electron yields from semileptonic charm and bottom hadron decays in Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C93 (2016) 034904.
- Forward J/Psi production in U+U collisions at sqrt(sNN)=193 GeV,
  - A. Adare et al., Phys. Rev. C93 (2016) 034903.
- Scaling properties of fractional momentum loss of high p\_T hadrons in nucleus-nucleus collisions at sqrt(sNN) from 62.4 GeV to 2.76 TeV,
  - A. Adare et al., Phys. Rev. C93 (2016) 024911.
- Phi meson production in the forward/backward rapidity region in Cu+Au collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. C93 (2016) 024904.
- Transverse energy production and charged particle multiplicity at midrapidity in various systems from sqrt(sNN)=7.7 to 200 GeV,
  - A. Adare et al., Phys. Rev. C93 (2016) 024901.
- Measurement of higher cumulants of net charge multiplicity distributions in Au+Au collisions at sqrt(sNN)=7.7-200 GeV,
  - A. Adare et al., Phys. Rev. C93 (2016) 011901(R).
- Dielectron production in Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C93 (2016) 014904.
- Inclusive cross section and double helicity asymmetry for pi0 production at midrapidity in p+p collisions at sqrt(s)=510 GeV,
  - A. Adare et al., Phys. Rev. D93 (2016) 011501(R).
- Phi meson production in d+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C92 (2015) 044909.
- Measurements of Elliptic and Triangular Flow in High Multiplicity 3He+Au Collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. Lett. 115 (2015) 142301.
- Systematic study of charged pion and kaon femtoscopy in Au+Au collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. C92 (2015) 034914.
- Systematic study of azimuthal anisotropy in Cu+Cu and Au+Au collisions at sqrt(sNN)=62.4 and 200 GeV,
  - A. Adare et al., Phys. Rev. C92 (2015) 034913.

- Centrality dependence of thermal photon production in sqrt(sNN)=200 GeV Au+Au collisions,
  - A. Adare et al., Phys. Rev. C91 (2015) 064904.
- Measurement of Long Range Angular Correlation and Quadrupole Anisotropy of Pions and (Anti)Protons in Central d+Au Collisions at sqrt(sNN)=200 GeV
   A. Adare et al., Phys. Rev. Lett. 114 (2015) 192301.
- Heavy quark production and elliptic flow in Au+Au collisions at sqrt(sNN)=62.4 GeV A. Adare et al., Phys. Rev. C91 (2015) 044907.
- Search for dark photons from neutral meson decays in p+p and d+Au collisions at sqrt(sNN)=200~GeV
  - A. Adare et al., Phys. Rev. C91 (2015) 031901(R).
- Charged pion cross sections and double helicity asymmetries in polarized p+p collisions at sqrt(s)=200 GeV
  - A. Adare et al., Phys. Rev. D91 (2015) 032001.
- Measurement of Upsilon(1S+2S+3S) production in p+p and Au+Au collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. C91 (2014) 024913.
- Cross section for b-bbar production via dielectrons in d+Au collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. C91 (2014) 014907.
- Nuclear matter effects on J/Psi production in asymmetric Cu+Au collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. C90 (2014) 064908.
- Measurement of Kshort0 and K\*0 in p+p, d+Au, and Cu+Cu collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. C90 (2014) 054905.
- Cross section and transverse single spin asymmetry of eta mesons in p+p collisions at sqrt(s)=200 GeV at forward rapidity
  - A. Adare et al., Phys. Rev. D90 (2014) 072008.
- Low mass vector meson production at forward rapidity in p+p collisions at sqrt(s) = 200 GeV
  - A. Adare et al., Phys. Rev. C90 (2014) 052002.
- System size dependence of open heavy flavor production in nucleus-nucleus collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. C90 (2014) 034903.
- Centrality categorization for  $R_p(d)+A$  in high energy collisions A. Adare et al., Phys. Rev. C90 (2014) 034902.
- Inclusive double helicity asymmetries in neutral pion and eta meson production in polarized p+p collisions at sqrt(s)=200 GeV
  - A. Adare et al., Phys. Rev. D90 (2014) 012007.
- Measurement of transverse single spin asymmetries for midrapidity and forward rapidity production of hadrons in polarized p+p collisions at sqrt(s)=200 and 62.4 GeV A. Adare et al., Phys. Rev. D90 (2014) 012006.
- Cold Nuclear Matter Effects on Heavy Quark Production at Forward and Backward Rapidity in d+Au Collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. Lett. 112 (2014) 252301.

- Azimuthal Angle Dependence of Charged Pion Interferometry Measurements with Respect to Second- and Third-Order Event Planes in Au+Au Collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. Lett. 112 (2014) 222301.
- Transverse-energy distributions at midrapidity in p+p, d+Au, and Au+Au collisions at sqrt(sNN)=62.4-200 GeV and implications for particle-production models S.S. Adler et al., Phys. Rev. C 89 (2014) 044905.
- Heavy-flavor electron-muon correlations in p+p and d+Au collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. C 89 (2014) 034915.
- Azimuthal anisotropy of pi0 and eta mesons in Au+Au Collisions at sqrt(sNN)=200 GeV A. Adare et al., Phys. Rev. C 88 (2013) 064910.
- Quadrupole Anisotropy in Dihadron Azimuthal Correlations in Central d+Au Collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. Lett. 111 (2013) 212301.
- Nuclear Modification of Psi', Chi\_c, and J/Psi Production in d+Au Collisions at sqrt(sNN)=200 GeV
  - A. Adare et al., Phys. Rev. Lett. 111 (2013) 202301.
- Spectra and ratios of identified particles in Au+Au and d+Au collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. C88 (2013) 024906.
- Inclusive cross section and single transverse spin asymmetry for very forward neutron production in polarized p+p collisions at sqrt(s)=200 GeV,
  - A. Adare et al., Phys. Rev. D88 (2013) 032006
- Medium Modification of Jet Fragmentation in Au+Au Collisions at sqrt(sNN)=200 GeV Measured in Direct Photon-Hadron Correlations,
  - A. Adare et al., Phys. Rev. Lett. 111 (2013) 032301.
- Direct photon production in d+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C87 (2013) 054907.
- Upsilon(1S+2S+3S) production in d+Au and p+p collisions at sqrt(sNN)=200 GeV and cold-nuclear-matter effects,
  - A. Adare et al., Phys. Rev. C87 (2013) 044909.
- Neutral pion production with respect to centrality and reaction plan in Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C87 (2013) 034911.
- Transverse-momentum dependence of the J/Psi nuclear modification in d+Au collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. C87 (2013) 034904.
- Double-spin asymmetry of electrons from heavy flavor decays in p+p collisions at sqrt(s)=200 GeV,
  - A. Adare et al., Phys. Rev. D87 (2013) 012011.
- J/Psi suppression at forward rapidity in Au+Au collisions at sqrt(sNN)=30 and 62.4 GeV,
  - A. Adare et al., Phys. Rev. C86 (2012) 064901.

- Cold-Nuclear-Matter Effects on Heavy-Quark Production in d+Au Collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. Lett. 109 (2012) 242301.
- Cross sections and double-helicity asymmetries of midrapidity inclusive charged hadrons in p+p collisions at sqrt(s) = 62.4 GeV,
  - A. Adare et al., Phys. Rev. D86 (2012) 092006.
- Measurement of Direct Photons in Au+Au Collisions at sqrt(sNN)=200 GeV,
   S. Afanasiev et al., Phys. Rev. Lett. 109 (2012) 152302.
- Evolution of PiO Suppression in Au+Au Collisions from sqrt(sNN)= 39 to 200 GeV, A. Adare et al., Phys. Rev. Lett. 109 (2012) 152301.
- Observation of Direct-Photon Collective Flow in Au+Au Collisions at sqrt(sNN) = 200 GeV,
  - A. Adare et al., Phys. Rev. Lett. 109 (2012) 122302.
- Nuclear-modification factor for open-heavy-flavor production at forward rapidity in Cu+Cu collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C86 (2012) 024909.
- Ground and excited state charmonium production in p+p collisions at sqrt(s) = 200 GeV,
  - A. Adare et al., Phys. Rev. D85 (2012) 092004.
- Deviation from quark number scaling of the anisotropy parameter v2 of pions, kaons, and protons in Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C85 (2012) 064914.
- Measurements of Higher Order Flow Harmonics in Au+Au Collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. Lett. 107 (2011) 252301.
- *J/Psi suppression at forward rapidity in Au+Au collisions at sqrt(sNN)=200 GeV* , A. Adare et al., Phys. Rev. C84 (2011) 054912.
- Heavy-quark production in p+p and energy loss and flow of heavy quarks in Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C84 (2011) 044905.
- Production of omega mesons in p+p, d+Au, Cu+Cu, and Au+Au collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. C84 (2011) 044902.
- Suppression of Back-to-Back Hadron Pairs at Forward Rapidity in d+Au collisions at sqrt(sNN)=200~GeV,
  - A. Adare et al., Phys. Rev. Lett. 107 (2011) 172301.
- Cold Nuclear Matter Effects on J/Psi Yields as a Function of Rapidity and Nuclear Geometry in d+A collisions at sqrt(sNN)=200 GeV.
  - A. Adare et al., Phys. Rev. Lett. 107 (2011) 142301.
- Suppression of away-side jet fragments with respect to the reaction plane in Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C84 (2011) 024904.
- Event structure and double helicity asymmetry in jet production from polarized p+p collisions at sqrt(s)=200 GeV.
  - A. Adare et al., Phys. Rev. D84 (2011) 012006.

- Identified charged hadron production in p+p collisions at sqrt(s)=200 and 62.4 GeV, A. Adare et al., Phys. Rev. C83 (2011) 064903.
- Azimuthal correlations of electrons from heavy-flavor decay with hadrons in p+p and Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C83 (2011) 044912.
- Measurement of neutral mesons in p+p collisions at sqrt(s)=200 GeV and scaling properties of hadron production,
  - A. Adare et al., Phys. Rev. D83 (2011) 052004.
- Nuclear modification factors of phi mesons in d+Au, Cu+Cu, and Au+Au collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - A. Adare et al., Phys. Rev. C83 (2011) 024909.
- Cross Section and Parity-Violating Spin Asymmetries of W Boson Production in Polarized p+p Collisions at sqrt(s)=500 GeV.
  - A. Adare et al., Phys. Rev. Lett. 106 (2010) 062001.
- Measurement of transverse single-spin asymmetries for J/Psi production in polarized p+p collisions at sqrt(s)=200 GeV, ,
  - A. Adare et al., Phys. Rev. D82 (2010) 112008.
- High pT direct photon and pi0 triggered azimuthal jet correlations and measurement of kT for isolated direct photons in p+p collisions at sqrt(s) = 200 GeV, A. Adare et al., Phys. Rev. D82 (2010) 072001.
- Azimuthal Anisotropy of PiO Production in Au+Au Collisions at sqrt(sNN)=200 GeV: Path-Length Dependence of Jet Quenching and the Role of Initial Geometry, A. Adare et al., Phys. Rev. Lett. 105 (2010) 142301.
- Elliptic and Hexadecapole Flow of Charged Hadrons in Au+Au Collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. Lett. 105 (2010) 062301.
- Transverse momentum dependence of J/Psi poliarization at midrapidity in p+p collisions at sqrt(s)=200 GeV.
  - A. Adare et al., Phys. Rev. D82 (2010) 012001.
- Transverse momentum dependence of eta meson suppression in Au+Au collisions at sqrt(sNN)=200 GeV,
  - A. Adare et al., Phys. Rev. C82 (2010) 011902(R).
- Transition in Yield and Azimuthal Shape Modification in Dihadron Correlations in Relativistic Heavy Ion Collisions, ,
  - A. Adare et al., Phys. Rev. Lett. 104 (2010) 252301.
- Enhanced Production of Direct Photons in Au+Au Collisions at sqrt(sNN)=200 GeV and Implications for Initial Temperature,
  - A. Adare et al., Phys. Rev. Lett. (2010) 132301.
- Detailed measurements of the e+e-pair continuum in p+p and Au+Au collisions at *sqrt(sNN)*=200 GeV and implications for direct photon production,
  - A. Adare et al., Phys. Rev. C81 (2010) 034911.
- High-pT pi0 production with respect to the reaction plane in Au+Au collisions at sqrt(sNN)=200 GeV,
  - S. Afanasiev et al., Phys. Rev. C80 (2009) 054907.

- Charged Kaon Interferometric Probes of Space-Time Evolution in Au+Au Collisions at  $sqrt(sNN)=200 \ GeV$ ,
  - S. Afanasiev et al., Phys. Rev. Lett. 103 (2009) 142301.
- Measurement of Bottom Versus Charm as a Function of Transverse Momentum with Electron-Hadron Correlations in p+p Collisions at sqrt(sNN)=200 GeV,
   S. Adare et al., Phys. Rev. Lett. 103 (2009) 082002.
- Photon-hadron jet correlations in p+p and Au+Au collisions at sqrt(sNN)=200 GeV, S. Adare et al., Phys. Rev. C80 (2009) 024908.
- Systematic studies of elliptic flow measurements in Au+Au collisions at sqrt(sNN)=200 GeV,
  - S. Afanasiev et al., Phys. Rev. C80 (2009) 024909.
- Gluon-Spin Contribution to the Proton Spin from the Double-Helicity Asymmetry in Inclusive Pi0 Production in Polarized p+p Collisions at sqrt(s)=200 GeV, A. Adare et al., Phys. Rev. Lett. 103 (2009) 012003.
- Dilepton mass spectra in p+p collisions at sqrt(s)=200 GeV and the contribution from open charm,
  - A. Adare et al., Phys. Lett. B670 (2009) 313.
- Suppression Pattern of Neutral Pions at High Transverse Momentum in Au+Au Collisions at sqrt(sNN)=200 GeV and Constraints on Medium Transport Coefficients, , A. Adare et al., Phys. Rev. Lett. 101 (2008) 232301.
- Charged hadron multiplicity fluctuations in Au+Au and Cu+Cu collisions from sqrt(sNN)=22.5 to 200 GeV,
  - A. Adare et al., Phys. Rev. C78 (2008) 044902.
- Onset of pi0 Suppression Studied in Cu+Cu Collisions at sqrt(sNN)=22.4, 62.4, and 200 GeV,
  - A. Adare et al., Phys. Rev. Lett. 101 (2008) 162301.
- J/Psi Production in sqrt(sNN)=200 GeV Cu+Cu Collsions,
  - A. Adare et al., Phys. Rev. Lett. 101 (2008) 122301.
- Particle-Species Dependent Modification of Jet-Induced Correlations in Au+Au Collisions at sqrt(sNN)=200 GeV,
  - S. Afanasiev et al., Phys. Rev. Lett. 101 (2008) 082301.
- Dihadron azimuthal correlations in Au+Au collisions at sqrt(sNN)=200 GeV, A. Adare et al., Phys. Rev. C78 (2008) 014901.
- Quantitative constraints on the transport properties of hot partonic matter from semiinclusive single high transverse momentum pion suppression in Au+Au collisions at sart(sNN)=200 GeV.
  - A. Adare et al., Phys. Rev. C77 (2008) 064907.
- Source Breakup Dynamics in Au+Au Collisions at sqrt(sNN)=200 GeV via Three-Dimensional Two-Pion Source Imaging,
  - S. Afanesiev et al., Phys. Rev. Lett. 100 (2008) 232301.
- Cold nuclear matter effects on J/Psi production as constrained by deuteron-gold measurements at sqrt(sNN) = 200 GeV.
  - A. Adare et al., Phys. Rev. C77 (2008) 024912.
- Centrality dependence of charged hadron production in deuteron+gold and nucleon+gold collisions at sqrt(sNN) = 200 GeV.
  - S. Adler et al., Phys. Rev. C77 (2008) 014905.

- Transverse momentum and centrality dependence of dihadron correlations in Au+Au collisions at sqrt(sNN) = 200 GeV: Jet quenching and the response of partonic matter, A. Adare et al., Phys. Rev. C77 (2008) 011901(R).
- Measurement of density correlations in pseudorapidity via charged particle multiplicity fluctuations in Au+Au collisions at sqrt(sNN) = 200 GeV.
  - S. Adler et al., Phys. Rev. C76 (2007) 034903.
- Detailed study of high-pT neutral pion suppression and azimuthal anisotropy in Au+Au collisions at sqrt(sNN) = 200 GeV.
  - S. Afanasiev et al., Phys. Rev. C76 (2007) 034904.
- Elliptic Flow for phi Mesons and (Anti)deuterons in Au+Au Collisions at sqrt(sNN) = 200 GeV.
  - S. Afanasiev et al., Phys. Rev. Lett. 99 (2007) 052301.
- Correlated production of p and pbar in Au+Au collisions at sqrt(sNN) = 200 GeV., A. Adare et al., Phys. Lett. B649 (2007) 359.
- System Size and Energy Dependence of Jet-Induced Hadron Pair Correlation Shapes in Cu+Cu and Au+Au at sqrt(sNN) = 200 and 62.4 GeV.
  - A. Adare et al., Phys. Rev. Lett. 98 (2007) 232302.
- J/Psi Production versus Transverse Momentum and Rapidity in Au+Au Collisions at sqrt(sNN) = 200 GeV.
  - A. Adare et al., Phys. Rev. Lett. 98 (2007) 232301.
- J/Psi Production versus Transverse Momentum and Rapidity in p+p Collisions at sqrt(s) = 200 GeV.,
  - A. Adare et al., Phys. Rev. Lett. 98 (2007) 232002.
- Production of omega mesons at large transverse momenta in p+p and d+Au collisions at sqrt(sNN) = 200 GeV,
  - S. Adler et al., Phys. Rev. C75 (2007) 051902(R).
- Centrality Dependence of pi0 and eta Production at Large Transverse Momentum in sqrt(sNN) = 200 GeV d + Au Collisions,
  - S. Adler et al., Phys. Rev. Lett. 98 (2007) 172302.
- Energy Loss and Flow of Heavy Quarks in Au+Au Collisions at sqrt(sNN) = 200 GeV, , A. Adare et al., Phys. Rev. Lett. 98 (2007) 172301.
- Scaling Properties of Azimuthal Anisotropy in Au+Au and Cu+Cu Collisions at sqrt(sNN) = 200 GeV,
  - A. Adare et al., Phys. Rev. Lett. 98 (2007) 162301.
- Evidence for a Long-Range Component in the Pion Emission Source in Au+Au Collisions at sqrt(sNN) = 200 GeV.
  - S. Adler et al., Phys. Rev. Lett. 98 (2007) 132301.
- High transverse momentum eta meson production in p+p, d+Au, and Au+Au collisions at sqrt(sNN) = 200 GeV,
  - S. Adler et al., Phys. Rev. C 75 (2007) 024909.
- Measurement of Direct Photon Production in p+p Collisions at sqrt(s) = 200 GeV,
   S. Adler et al., Phys. Rev. Lett. 98 (2007) 012002.
- Measurement of High-pT Single Electrons from Heavy-Flavor Decays in p+p Collisions at sqrt(s) = 200 GeV,
  - A. Adare et al., Phys. Rev. Lett. 97 (2006) 252002.

- *Jet properties from dihadron correlations in p+p collisions at sqrt(s)* = 200 GeV, S. Adler et al., Phys. Rev. D 74 (2006) 072002.
- Nuclear effects on hadron production in d+Au collisions at sqrt(sNN)=200 GeV revealed by comparison with p+p data,
  - S. Adler et al., Phys. Rev. C 74 (2006) 024904.
- Dense-Medium Modifications to Jet-Induced Hadron Pair Distributions in Au+Au Collisions at sqrt(sNN)=200 GeV,
  - S. Adler et al., Phys. Rev. Lett. 97 (2006) 052301.
- Azimuthal Angle Correlations for Rapidity Separated Hadron Pairs in d+Au Collisions at sqrt(sNN)=200 GeV,
  - S. Adler et al., Phys. Rev. Lett. 96 (2006) 222301.
- Common Suppression Pattern of Eta and Pi0 Mesons at High Transverse Momentum in au+Au Collisions at sqrt(sNN)=200 GeV,
  - S. Adler et al., Phys. Rev. Lett. 96 (2006) 202301.
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#### PHENIX NOTES

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- 2. PHENIX Analysis Note #1216: Centrality and Glauber Model Calculations for the run-11 19.6 and 27 GeV Au+Au Datasets, J.T. Mitchell, 5/4/15.
- 3. PHENIX Analysis Note #1214: Constituent quark generation that preserves the nucleon center and effect on Nqp calculations compared to PHENIX data, J.T. Mitchell et al., 4/23/15.
- 4. PHENIX Analysis Note #1199: Participant Quark Scaling of dN/deta and dE\_T/deta in 14.5 GeV Au+Au Collisions, J.T. Mitchell, 11/12/14.
- 5. PHENIX Analysis Note #1176: Participant Quark and Participant Nucleon Scaling of dN/deta and dE\_T/deta from the Beam Energy Scan, J.T. Mitchell, 5/2/14.
- 6. PHENIX Analysis Note #1165: Scaling study of fractional momentum loss of high p\_T hadrons in Au+Au, Cu+Cu, and Pb+Pb collisions, G. David et al., 6/17/15.
- 7. PHENIX Analysis Note #1149: Centrality Dependence of dN/deta and dE\_T/deta for Run-8 200 GeV d+Au Collisions, J.T. Mitchell, 3/12/14.
- 8. PHENIX Analysis Note #1146: Centrality Calibration and Glauber Model Calculations for the Run-12 193 GeV U+U Dataset, J.T. Mitchell, 11/13/13.
- 9. PHENIX Analysis Note #1141: Fractional momentum loss of high p\_T hadrons in Au+Au and Pb+Pb collisions, G. David et al., 10/18/13.
- 10. PHENIX Analysis Note #1091: Participant Quark Scaling of Transverse Energy Production in 200 GeV Au+Au, d+Au, p+p, and 62.4 GeV Au+Au Collisions, A. Bazilevsky et al., 6/5/13.
- 11. PHENIX Analysis Note #1088: EMCal Calibrations for the Run-12 Combined Heavy Ion

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- 12. PHENIX Analysis Note #1078: Centrality Calibration and Glauber Model Calculations for the Run-12 200 GeV Cu+Au Dataset, M. Dai, J.T. Mitchell, and M. Sun, 6/25/14.
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- 14. PHENIX Analysis Note #1067: Final E\_T distributions at midrapidity in p+p, d+Au, and Au+Au collisions and extreme independent models of particle production, A. Bazilevsky et al., 1/8/14.
- 15. PHENIX Analysis Note #1054: Global Measurements for Au+Au, Cu+Au, Cu+Cu, and U+U Collisions, M. Dai, J.T. Mitchell, and M. Sun, 8/3/12.
- 16. PHENIX Analysis Note #1012: Transverse Energy Production in 39 GeV and 7.7 GeV Au+Au Collisions, J.T. Mitchell, 4/12/12.
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- 24. PHENIX Analysis Note #555: Multiplicity Fluctuations in 22 GeV Cu+Cu Collisions, J.T. Mitchell, 11/16/06.
- 25. PHENIX Analysis Note #554: A Survey of Event-by-Event Fluctuations in Mean Transverse Momentum, J.T. Mitchell, 11/16/06.
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- 27. PHENIX Analysis Note #474: Fluctuations in Kaon-to-Proton and Proton-to-Pion Ratios in Au+Au Collisions at sqrt(sNN)=200 GeV, E. Haslum et al., 12/8/05.
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- 29. PHENIX Analysis Note #431: The Evolution of Correlation Functions from Low to High pT: HBT to Jets, and More, 7/29/05.
- 30. PHENIX Analysis Note #372: A Survey of Multiplicity Fluctuations, J. T. Mitchell, 4/14/05.
- 31. PHENIX Analysis Note #359: Correlation Functions from Low to High pT in 200 GeV p+p

- and d+Au Collisions: From HBT to Jets, J. T. Mitchell, 3/8/05.
- 32. PHENIX Analysis Note #215: Jet and Elliptic Flow Contributions to the Run-2 Event-by-event Average pT Fluctuation Signal, J. T. Mitchell, 7/9/03.
- 33. PHENIX Analysis Note #204: Observation of Excess Event-by-Event Average Pt Fluctuations in the Run-2 Au+Au and p+p Data, J. T. Mitchell, 5/20/03.
- 34. PHENIX Analysis Note #123: Preliminary Event-by-event Fluctuations in Average Pt in sqrt(sNN) = 200 GeV Au+Au Collisions, J. T. Mitchell, 7/11/02.
- 35. PHENIX Analysis Note #105: PHENIX Sensitivity to Event-by-event Fluctuations in Mean Pt and Et in sqrt(sNN) = 130 GeV Au+Au Collisions, J. T. Mitchell and M. J. Tannenbaum, 3/4/02.
- 36. PHENIX Analysis Note #86: Update on Event-by-event Fluctuations in Mean Pt and Et in sqrt(sNN) = 130 GeV Au+Au Collisions, J. T. Mitchell and M. J. Tannenbaum, 10/10/01.
- 37. PHENIX Technical Note #390: Birdseye: An Interactive Event Visualization for PHENIX, J.T. Mitchell and P. Nilsson, 9/27/01.
- 38. PHENIX Analysis Note #79: Analysis of Event-by-Event Distributions in PHENIX, M. Tannenbaum and J. T. Mitchell, 8/23/01.
- 39. PHENIX Technical Note #389: P.O.V.: PHENIX Offline Visualization, J. T. Mitchell and J. Lauret, 5/31/01.
- 40. PHENIX Analysis Note #55: Preliminary Results on Event-by-Event Fluctuations in the Mean Pt and Et of Gamma=70 Au+Au Collisions in PHENIX, J. T. Mitchell, 4/13/01.
- 41. PHENIX Technical Note #384: Evaluation of the Performance of Drift Chamber to Pad Chamber Hit Association, J. T. Mitchell, 1/9/01.
- 42. PHENIX Technical Note #383: PHENIX Track Models and Object-Oriented Hit Association, J. T. Mitchell, 12/21/00.
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### **STAR NOTES**

- 1. STAR Note #103. W. Gong, et al. Temperature Dependence of Gas Gain for an MWPC Readout, 4/25/94.
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#### **SEMINARS**

Bari, Italy

Global Observable Measurements from the Beam Energy Scan in PHENIX Quark Matter 2015 Kobe, Japan September 30, 2015. Invited PHENIX Global Variables and Fluctuations from the RHIC Beam Energy Scan Zimanyi Winter School Budapest, Hungary December 4, 2014. Invited PHENIX Global Variables and Fluctuations from the RHIC Beam Energy Scan Workshop on the Critical Point and Onset of Deconfinement Bielefeld, Germany November 18, 2014. Invited Global and Geometrical Observables in U+U Collisions RHIC/AGS User's Meeting **BNL** June 26, 2013. Invited The RHIC Beam Energy Scan Program: Results from the PHENIX Experiment Workshop on the Critical Point and Onset of Deconfinement **LBNL** March 11, 2013. Invited The RHIC Beam Energy Scan Program: Results from the PHENIX Experiment Ouark Matter 2012 Washington, DC August 17, 2012. Invited PHENIX Results from the RHIC Beam Energy Scan Program Workshop on Fluctuations, Correlations, and the RHIC Low Energy Run BNL October 3, 2011. Invited PHENIX Results from the RHIC Beam Energy Scan Program EPIC at LHC Workshop

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July 7, 2011. Invited
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# PHENIX Results from the RHIC Beam Energy Scan Program

RHIC/AGS User's Meeting

**BNL** 

June 20, 2011.

Invited

# First Results from the RHIC Beam Energy Scan Program

Ortvay Colloquium

ELTE University, Budapest, Hungary

December 2, 2010.

Invited

# Searching for the QCD Critical Point with Correlation and Fluctuation Measurements from PHENIX

Winter Workshop on the Critical Point and Onset of Deconfinement

BNL

June 8, 2009.

Invited

# Searching for the QCD Critical Point with Correlation and Fluctuation Measurements from PHENIX

Winter Workshop on Particle Correlations and Femtoscopy

Krakow, Poland

November 12, 2008.

Invited

# Searching for the QCD Critical Point with Correlation and Fluctuation Measurements from PHENIX

Winter Workshop on Nuclear Dynamics

South Padre Island, TX

April 12, 2008.

Invited

## Scaling Properties of Azimuthal Correlation and Fluctuation Results from PHENIX

BNL-Riken Theory Lunch Seminar

Upton, NY

May 24, 2007.

Invited

# Scaling Properties of Fluctuation and Correlation Results from PHENIX

Quark Matter 2006

Shanghai, China

November 18, 2006.

Invited

## PHENIX Capabilities for Low Energy Running

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Workshop on Future Prospects in QCD at High Energy
   Upton, NY
   July 21, 2006.
   Invited
New Fluctuation and Low-p<sub>T</sub> Correlation Results from PHENIX
   2<sup>nd</sup> International Workshop on Correlations and Fluctuations in Relativistic Nuclear
   Collisions.
   Florence, Italy
   July 8, 2006.
   Invited
The PHENIX Potential in the Search for the QCD Critical Point
   3<sup>rd</sup> International Workshop on The Critical Point and the Onset of Deconfinement
   Florence, Italy
   July 4, 2006.
   Invited
Fluctuation Results from PHENIX
   4<sup>th</sup> International Conference on Quarks and Nuclear Physics
   Madrid, Spain
   June 7, 2006.
   Invited
Fluctuation Results from PHENIX
   Correlations and Fluctuations in Relativistic Nuclear Collisions Workshop
   Boston, MA
   April 22, 2005.
   Invited
An Overview of Fluctuations in Relativistic Heavy Ion Collisions
   Ouark Matter 2004
   Oakland, CA
   January 15, 2004.
   Invited
Global and Hadronic Observables in the PHENIX Experiment at RHIC
   8<sup>th</sup> Wigner Symposium
   Manhattan, NY
   May 28, 2003.
   Invited
RHIC and the Pursuit of the Plasma
   2001 Sambamurti Prize Lecture
   Brookhaven National Laboratory
   July 25, 2001.
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Event-by-Event Mean Pt and Et Fluctuations in Au+Au Collisions at RHIC

Invited

RHIC/INT Winter Workshop

Seattle, WA

January 5, 2002.

Invited

**ACS National Meeting** 

Chicago, IL

August 30, 2001.

Invited

PHENIX's First Flight: Continuing the Search for the Quark-Gluon Plasma.

357th Brookhaven Lecture

Brookhaven National Laboratory

October 18, 2000.

Invited

Object-Oriented Tracking in PHENIX.

APS Division of Nuclear Physics Annual Meeting

Williamsburg, Virginia

October 7, 2000.

Contributed

The Capabilities of PHENIX in the Strangeness Sector.

Workshop on Flow and Strangeness Production in Heavy Ion Collisions.

Obernai, France

September 27, 1999.

Invited

An Overview of the PHENIX Experiment at RHIC.

Particles and Nuclei 1996.

William and Mary University, Williamsburg, VA

May 28, 1996.

Invited

Observing the Effects of Chiral Symmetry Restoration in Relativistic Heavy Ion Collisions with Electron Pairs.

Nuclear Physics Seminar.

Brookhaven National Laboratory.

April 9, 1996.

Invited

Stopping and Two-Pion Bose-Einstein Correlation Results from CERN Experiment NA35.

APS Division of Particles and Fields 1994.

University of New Mexico, Albuquerque, NM.

August 2, 1994.

Contributed

Baryon Stopping in 200 GeV/A S+Au Collisions.

Intersections of Particle and Nuclear Physics.

St. Petersburg, FL.

June 5, 1994.

Contributed

Stopping in Relativistic Heavy Ion Collisions.

University of California - Davis

**Nuclear Physics Symposium** 

November 12, 1993.

Invited

Hadron Distributions in 200 GeV/A S+Au Collisions: A Look at Stopping.

Yale University

Wright Nuclear Structure Laboratory Seminar

July 22, 1993.

Invited

Hadron Distributions in 200 GeV/A S+Au Collisions: A Look at Stopping.

Quark Matter 1993.

Borlänge, Sweden.

June 21, 1993.

Contributed

An Overview of Microstrip Gas Chambers.

Lawrence Berkeley Laboratory

Relativistic Nuclear Collisions Group Seminar

December 16, 1992.

Contributed

Charged Particle Distributions in 14.6 GeV/A Nuclear Collisions.

Massachussets Institute of Technology

**Nuclear Physics Seminar** 

March 10, 1992.

Invited

Charged Particle Distributions in 14.6 GeV/A Nuclear Collisions.

Oak Ridge National Laboratory

HHIRF Nuclear Physics Seminar

March 3, 1992.

Invited

Charged Particle Distributions in 14.6 GeV/A Nuclear Collisions.

Lawrence Berkeley Laboratory

Relativistic Nuclear Collisions Group Seminar

February 26, 1992.

Invited

Charged Particle Distributions in 14.6 GeV/A Nuclear Collisions.

Brookhaven National Laboratory

**Nuclear Physics Seminar** 

February 25, 1992. *Invited* 

Charged Particle Distributions in 14.6 GeV/A Nuclear Collisions.

State University of New York in Stony Brook Nuclear Physics Department Seminar February 19, 1992. *Invited*